



UNIVERSITI PUTRA MALAYSIA

**INFLUENCE OF GENDER AND BODY MASS INDEX ON
BODY IMAGE AMONG MALAYSIAN ADOLESCENTS
AGED 11 TO 15 YEARS**

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FPSK (M) 2003 1

**INFLUENCE OF GENDER AND BODY MASS INDEX ON BODY IMAGE
AMONG MALAYSIAN ADOLESCENTS AGED 11 TO 15 YEARS**

By

PHAN YNG YIH

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of Requirement for the
Degree of Master of Science**

February 2003



DEDICATION

To my mother, Madam Lim Ai Lan and father, Mr. Phan Hen Wee for their constant encouragement and care throughout my Master study.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirement for the degree of Master of Science

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Chairman: Professor Khor Geok Lin, Ph.D.

Faculty: Medicine and Health Sciences

This study was carried out to examine the influence of gender and body mass index on body image among adolescents aged 11 to 15 years in Malaysia. The adolescents were selected through a multi-stage random sampling involving random selection of secondary schools from rural and urban areas in Kedah and Pulau Pinang. The adolescents were categorized as underweight, normal weight and overweight based on their body mass index (BMI). Out of 2050 adolescents who completed the body image questionnaires, 769 adolescents were selected to complete a 3-day dietary record and a 3-day physical activity record.

Out of the 769 respondents, 52.9% were female and 47.1% male. This study found that the majority of the adolescents were concerned with body shapes, selecting health as their reason for concern. Females however were more likely to choose beauty for their concern and look to models and idols

as their role models. Parents and peers were their main sources of information concerning body shape. Females in general exhibited poorer body image in comparison with male adolescents. More females than males reported having body shape problems including dissatisfaction with various body parts. While the females tend to overestimate their body weight, male adolescents were more likely to underestimate their body weight. More females desired to lose weight while more males wanted to gain weight. Underweight males tend to have a lower body image than underweight females. Female adolescents preferred to have a smaller figure while male adolescents desired a larger figure. Overweight adolescents of both genders reported having body shape problems and they perceived themselves as being less well accepted socially.

Weight preoccupation among the underweight adolescents was positively correlated with their energy intake. However, higher peer acceptance leads to higher energy intake in underweight males only. This showed that underweight males were encouraged to consume more energy while underweight females did not receive such feedback. Energy expenditure among underweight male adolescents was positively correlated with peer acceptance but energy expenditure among underweight females was negatively correlated with peer acceptance. Perceived parental and peer acceptance of body shape among the overweight adolescents were negatively correlated with their energy intake. Perceived parental acceptance of their body shapes was negatively correlated with energy expenditure among overweight adolescents indicating higher parental acceptance was associated with lower energy expenditure. In conclusion,

this study found that gender and body mass index (BMI) influence the body image of adolescents. Body image was associated with energy intake and energy expenditure, which in turn have implications on the nutritional status of adolescents in the form of underweight or overweight.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan ijazah Master Sains

**PENGARUH JANTINA DAN INDEKS JISIM TUBUH TERHADAP
IMEJ TUBUH DI KALANGAN REMAJA MALAYSIA
BERUMUR 11 SEHINGGA 15 TAHUN**

Oleh

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Februari 2003

Pengerusi: Profesor Khor Geok Lin, Ph.D.

Fakulti: Perubatan dan Sains Kesihatan

Kajian ini dijalankan untuk mengkaji pengaruh jantina dan indeks jisim tubuh terhadap imej tubuh di kalangan remaja berumur 11 sehingga 15 tahun. Remaja dipilih melalui persampelan rawak berperingkat di kalangan sekolah-sekolah menengah di negeri Kedah dan Pulau Pinang. Remaja dikategori mengikut Indeks Jisim Tubuh (IJT) iaitu kurang berat badan, normal berat badan dan lebih berat badan. Daripada 2050 remaja yang menjawab borang soal-selidik imej tubuh, 769 telah dipilih untuk menjawab pengambilan makanan dan aktiviti fizikal. Data pengambilan makanan dan aktiviti fizikal diperolehi dengan menggunakan rekod pengambilan diet 3 hari dan rekod aktiviti fizikal 3 hari.

Daripada 769 remaja yang dikaji, 52.9% adalah remaja perempuan dan 47.1% adalah remaja lelaki. Kajian ini mendapati bahawa kebanyakan remaja mengambil berat tentang bentuk badan mereka dan berbuat demikian kerana kesihatan. Walau bagaimanapun, remaja perempuan lebih cenderung berbuat demikian untuk kecantikan dan memilih model dan artis pujaan sebagai orang yang mempengaruhi mereka. Ibu bapa dan rakan-rakan merupakan tempat carian maklumat utama mengenai bentuk badan. Remaja perempuan mempunyai imej tubuh yang lebih buruk berbanding dengan remaja lelaki. Lebih banyak remaja perempuan mengalami masalah berat badan dibandingkan dengan remaja lelaki. Remaja perempuan turut mencatatkan darjah kepuasan yang lebih rendah terhadap bahagian-bahagian badan berbanding dengan remaja lelaki. Remaja perempuan lebih cenderung menganggap berat mereka lebih daripada yang sebenarnya manakala remaja lelaki lebih cenderung bertanggungjawab berat mereka kurang daripada berat yang sebenarnya. Lebih banyak remaja perempuan ingin mengurangkan berat badan mereka manakala lebih banyak remaja lelaki ingin menambah berat badan mereka. Remaja lelaki kurang berat badan mempunyai imej tubuh yang lebih rendah daripada remaja perempuan kurang berat badan. Remaja perempuan menginginkan bentuk badan yang lebih kecil manakala remaja lelaki menginginkan bentuk badan yang lebih besar. Lebih banyak remaja berlebihan berat badan mengalami masalah berat badan dan bertanggungjawab bahawa diri mereka kurang diterima secara sosial.

Kepentingan berat (*Weight preoccupation*) di kalangan remaja kurang berat badan adalah berkorelasi secara positif dengan pengambilan tenaga. Walau bagaimanapun, penerimaan daripada rakan yang lebih tinggi hanya menyebabkan pengambilan tenaga yang lebih tinggi di kalangan remaja lelaki yang kurang berat badan. Ini menunjukkan bahawa remaja lelaki kurang berat badan digalakkan untuk mengambil lebih banyak tenaga tetapi remaja perempuan tidak menerima galakan sebegini. Penggunaan tenaga di kalangan remaja lelaki kurang berat badan adalah berkorelasi secara positif dengan penerimaan daripada rakan manakala penggunaan tenaga di kalangan remaja perempuan kurang berat badan adalah berkorelasi secara negatif dengan penggunaan tenaga. Tanggapan penerimaan daripada ibubapa dan rakan adalah berkorelasi secara negatif dengan pengambilan tenaga di kalangan remaja berlebihan berat badan. Para remaja berlebihan berat badan tidak digalakkan untuk mengambil lebih banyak tenaga. Penerimaan daripada ibubapa berkorelasi secara negatif dengan penggunaan tenaga di kalangan remaja berlebihan berat badan. Penerimaan daripada ibubapa yang lebih tinggi membawa kepada penggunaan tenaga yang lebih rendah. Kesimpulannya, kajian ini mendapati bahawa jantina dan indeks jisim tubuh (IJT) mempengaruhi imej tubuh di kalangan remaja. Imej tubuh turut mempengaruhi pengambilan tenaga dan penggunaan tenaga, seterusnya memberi kesan terhadap status pemakanan remaja secara kekurangan berat badan ataupun berlebihan berat badan.

ACKNOWLEDGEMENTS

I would like to express my utmost gratitude to God who has been the pillar of my strength as I pursued my Master degree. Without Him, I would not have been motivated enough to accomplish this task. To God be the glory!

My sincere gratitude to my supervisor Professor Khor Geok Lin who had been very patient and understanding throughout the process of my research, especially in guiding and correcting my thesis. I also wish to thank my co-supervisors, Dr. Zalilah Mohd. Shariff and Dr. Maznah Baba for their suggestions and advice during my research. My deepest appreciation also goes to Ang Merlin, co-researcher in the Body Image Project, who worked along side with me throughout the project. I have not forgotten friends and lecturers including Hwei Mian, Abher, Rani, Vina, Shashi, Eileen, Dr. Chee Heng Leng, Dr. Jegak Uli, Dr. Mohd Nasir Mohd Taib and Dr. Ong King Kok, for all their encouragement especially at times when I felt like giving up. I also wish to thank my sister, Yng Shiuan and her husband Jet Pin for their assistance in editing my thesis. Special thanks to my new found best friend, Peter Ho Chiung Ching for loving me in so many ways. Most of all, my dedication goes to my loving parents who have supported and believed in me as I engaged in this research. Lastly, I wish to extend my gratitude to the Ministry of Science, Technology and Environment for funding this project under the Intensification of Research in Priority Areas (IRPA) grant No: 06-02-05-9005.

I certify that an Examination Committee met on 21st February 2003 to conduct the final examination of Phan Yng Yih on her Master of Science thesis entitled "Influence of Gender and Body Mass Index on Body Image among Malaysian Adolescents Aged 11-15 Years" in accordance with the Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



PHAN YNG YIH

Date: 29-3-2003

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GLOSSARY OF TERMS

Body image:	Perceptions and feelings toward one's body
Body shape dissatisfaction:	The discrepancies of scores between figure which was selected as ideal and figure which were selected as current. The bigger the difference the higher the level of body shape dissatisfaction
Weight perception:	Self perceived weight status
Weight Underestimation:	Perceived weight status less than what was classified using BMI status
Weight Overestimation:	Perceived weight status more than what was classified using BMI status

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

“Adolescence is the stage of life between childhood and adulthood in which wide-ranging changes occur in the physiological and biochemical systems, and in behaviour” (Hamburg, 1998). This transition period can give rise to feelings of uncertainty and ambiguity. Adolescents may be vulnerable to external influences and succumb to risk behaviours such as smoking, substance abuse and driving under the influence of alcohol. In the United States, adolescent mortality rate due to accidents and violence has been on the rise (Muuss and Porton, 1998).

Body image is defined as one's perceptions, attitudes and feelings towards one's body. This includes the individual's perception and judgment of his or her size, shape, weight and other aspects of the body that relate to body appearance (O'Dea, 1995). As adolescents undergo rapid body changes, they become increasingly concerned with their body and at how others perceive their body. Adolescents have been found to engage in health compromising behaviours such as food avoidance or consuming certain types of food in order to achieve their ideal body shape (O'Dea and Rawstorne, 2001; Tiggemann, 2001).

The root of body image studies can be traced to early neurological studies. Neurologists found that brain-damaged patients exhibit symptoms such as denial of paralysed body regions, inability to distinguish the right and left side, and even regard new or superhumanary body parts as parts of themselves (Fisher, 1990). Since then, the study of body image has expanded to other fields including psychology, nutrition and behavioural sciences. The study of body image can be divided into two major aspects of appearance-related body image namely, the perceptual component such as accuracy of self-report weight, and the attitudinal component such as body satisfaction and behaviour (Cash, 1990; O'Dea, 1995). The formation of body image begins early in life (Collins, 1991), but is actively established during adolescence due to the rapid physical growth and changes that occur during this period (Fowler, 1989).

Studies have found that body image perceptions may affect lifestyles including dietary habits, which in turn, affect food intake and nutritional status. Adolescents often engage in dieting because of poor body image. A study conducted by Emmons (1996) among 1269 high school students found that majority of adolescents who engaged in dieting were not overweight while some were even underweight. These adolescents might have unreasonable expectations towards their body leading to inadequate dietary intake. Adolescents are also often the victims of diet fads and myths. Studies in Korea and United States found that adolescents' meal patterns do not meet their dietary requirements (Ro, 2000; Barr, 1994). Failing to do so

will deter them from achieving their optimal growth because 25% of a person's attained height is achieved during adolescence (Kurz, 1996).

Being overweight and obese can be stigmatising especially for adolescents because they are concerned with their body image. Those who are obese or overweight tend to shy away from physical activities because of poor body image (Anton, Perri and Riley, 2000). In contrast, some adolescents may carry out physical activities for the purpose of losing weight despite having normal weight (Gibbons, Wertheim, Paxton, Petrovich and Szmukler, 1995; Nowak, Crawford and Büttner, 2001). Therefore, body image not only influences dietary intake of adolescents but also their levels of physical activity (Lantz and Hardy, 1997; Krane, Stiles-Shipley, Waldron and Michalenok, 2001).

1.2 Problem Statement

Past studies have found that males and females differ in their perceptions of body image. Generally, females tend to have lower satisfaction towards their body compared to males (Salusso-Deonier and Schwarkopf, 1991; Nell and Ashton, 1996; Vander Wal and Thelen, 2000). While female adolescents' ideal figure tend to be thinner than their self perceived current figure, male adolescents prefer a bigger body size as their ideal figure than their self perceived current figure (Fallon and Rozin, 1985; Cohn, Adler, Irwin, Millstein, Kegels and Stone, 1987). This study seeks to

explore the differences in body image between male and female adolescents in Malaysia.

Another factor that may influence body image is actual body weight. Studies have shown that overweight adolescents are less satisfied with their body compared to normal weight adolescents of both sexes (Byrne and Hills, 1997). Damerest and Langer (1996) found that overweight adult females exhibited greater dissatisfaction towards their body compared to underweight and normal weight females. However, males who were underweight showed greater body dissatisfaction than the normal weight and overweight males. Rierdan and Koff (1997) found that body mass index is significantly associated with weight dissatisfaction and weight concern. In this study, the adolescents were categorized according to their nutritional status using body mass index (BMI). This study intends to determine the differences in body image among adolescents according to their BMI status (underweight, normal weight and overweight).

Body image perceptions may influence energy intake and energy expenditure. Some studies have reported that positive body image leads to higher levels of physical activity (Guinn and Semper, 1997; Anton et al., 2000). Other studies showed that body dissatisfaction was associated with avoidance of physical activity (Krane et al., 2001 and Lantz et al., 1997). This study intends to determine the relationship between body image and energy expenditure among adolescents with different BMI status.

Past studies have revealed that body image disturbances were closely related to eating disorders. Adolescents who have poor body image were found to diet more frequently (French, Story, Downes, Resnick and Blum, 1995). Their high desire for thinness leads to inadequate intake of nutrients including calcium, retinol, iron and zinc which are important for optimal growth. Macdonald and Wearing (1983) found that female adolescents with poor diet quality tend to perceive their present self bigger than those who have good dietary quality. Although studies on body image and eating habits tend to focus mainly on female adolescents, there is also an increasing number of male adolescents who are dieting (Gibbons et al., 1995). Keel, Fulkerson and Leon (1997) stated that poor body image might be predictive of disordered eating among early adolescent boys. Thus, body image plays a role in determining the eating habits for both male and female adolescents.

1.3 Importance of Study

Body image is of much concern to adolescents as they grow into adulthood (Delene and Brogowicz, 1990). While body image has been the focus of many studies in other countries including United States, Korea and Australia, it is not as extensively studied in Malaysia. This study seeks to increase the knowledge on body image of Malaysian adolescents.

Body image influences the self-esteem of a person (Mendelson and White, 1982). Studies found that there is an inverse relationship between body image and psychosocial factors such as depression and low self-